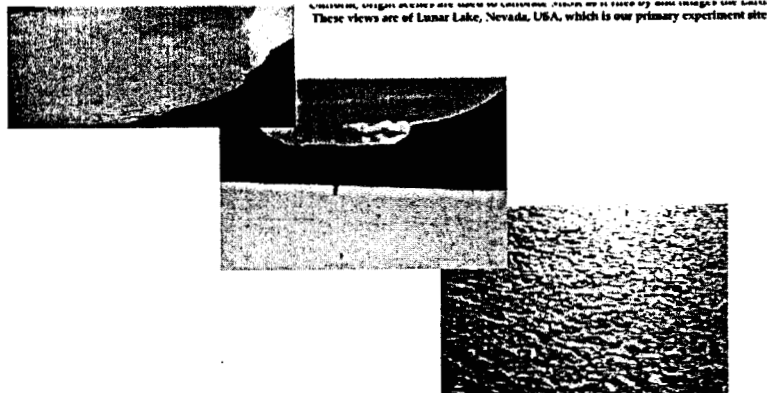


Site Selection



These views are of Lunar Lake, Nevada, USA, which is our primary experiment site.

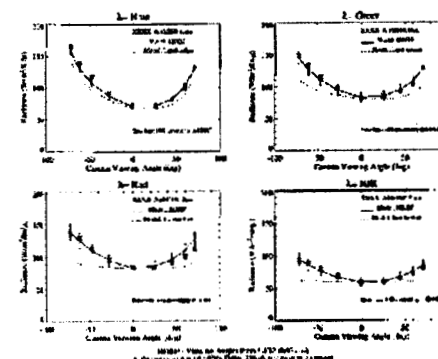
MISR flies at 700 km and makes use of nine cameras to provide views of the Earth at 6, 26.1, 48.6, 60.8, and 70.3 degrees, both fore and aft of the spacecraft. It uses 1504 detector elements to sweep out 364 km at a time. The spectral bands are at 446, 558, 672, and 866 nm.



AirMISR is built using an Engineering Model MISR camera. It is gimbaled to provide the same nine view angles as MISR. Flying at 20 km, it produces images which are 9 x 11 km in size.

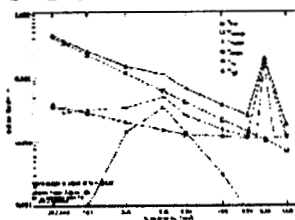
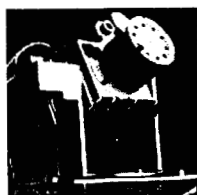
Surface measurements

Shown here are the PARABOLAH and Analytical Spectral Devices (ASD) field spectrometers. The PARABOLAH acquires continuous samples of radiances, within a 5 degree cone, and covering both the upwelling and downwelling hemispheres. These data have multiple uses. For vicarious calibration, we use the PARABOLAH to determine the hemispheric reflectance distribution function (HDRF), or angular reflectance properties of the surface. The ASD samples upwelling only in the nadir view direction, but allows us to do so over a large spatial area, as compared to the stationary PARABOLAH.



Top-of-atmosphere radiance comparison

Shown here is the radiance comparison from the vicarious calibration experiment of December 11, 1996. The solid line shows radiances computed using the surface and atmospheric measurements. The X symbols show the radiances measured by AirMISR, based upon its laboratory calibration. Agreement is within a few percent for most bands and view angles.



Shown, from left to right, are the Reagan sunphotometer, Cimel, and MFRSR radiometers. The Reagan is used to measure instantaneous total, aerosol, and ozone optical depths. The Cimel and MFRSR instruments allow us to constrain the aerosol phase function and single scatter albedo. An optical depth retrieval is shown for the December 11, 1996 vicarious calibration experiment over Rogers Dry Lake, California, USA.

Atmospheric measurements

Summary

Results from the MISR vicarious calibration experiments will be merged with results using data acquired with the on-board calibration. This will be done considering their uncertainties. It is believed that the MISR on-board calibration is good to within 3% (at a 1 sigma confidence). The vicarious calibration results are uncertain to 5%, however, they provide an important cross-check, and reduce systematic errors in our overall radiance products.

This and other MISR validation activities can be tracked on our web site. See <http://www-misr.jpl.nasa.gov>



MISR VICARIOUS

MISR VICARIOUS CALIBRATION

Site selection

Uniform, bright scenes are used to calibrate MISR as it flies by and images the Earth. These views are of Lunar Lake, Nevada, USA, which is our primary experiment site.

MISR

flies at 705 km and makes use of nine cameras to provide views of the Earth at 0, 26.1, 45.6, 60.0, and 70.5 degrees, both fore and aft of the spacecraft. It uses 1504 detector elements to sweep out 364 km at a time. The spectral bands are at 446, 558, 672, and 866 nm.

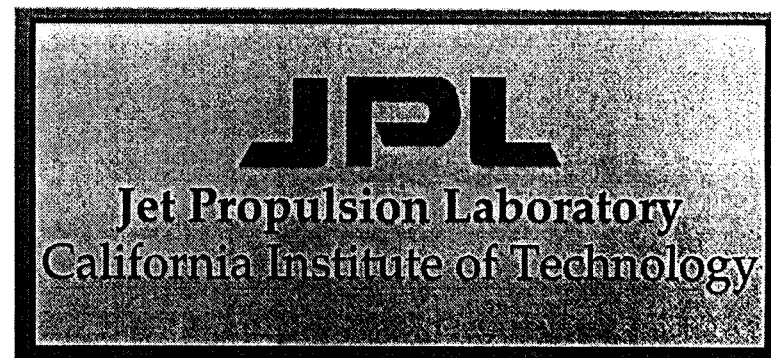
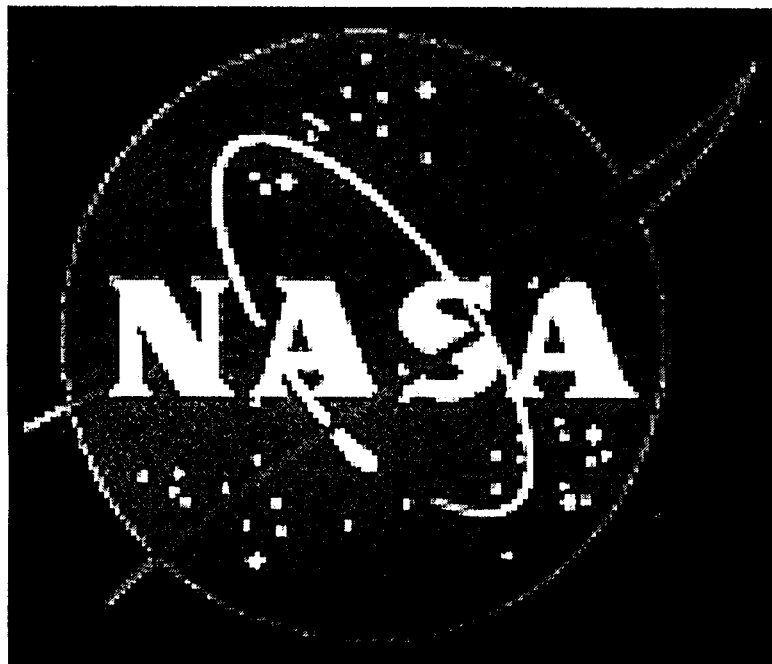
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Surface measurements

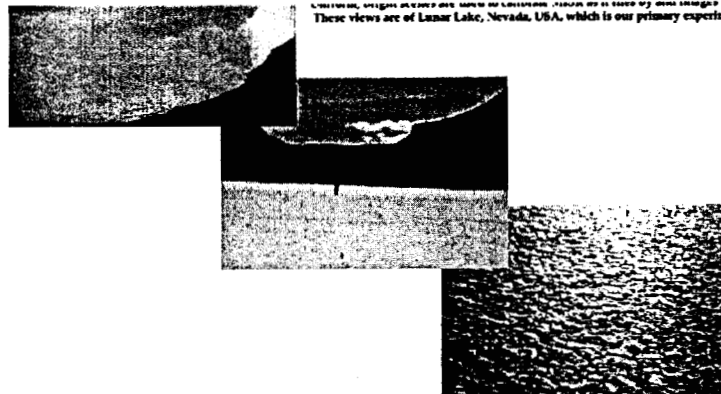
Shown here are the PARABOLA III and Analytical Spectral Devices (ASD) field spectrometer. The PARABOLA acquires continuous samples of radiances, within a 5 degree cone, and covering both the upwelling and downwelling hemispheres. These data have multiple uses. For vicarious calibration, we use the PARABOLA to determine the hemispheric reflectance distribution function (HDRF), or angular reflectance properties of the surface. The ASD samples upwelling only in the nadir view direction, but allows us to do so over a large spatial area, as compared to the stationary PARABOLA.

Capl Bruesse
8/20/99



Site Selection

Left column images were taken on 11/11/96. Right column images were taken on 11/11/96. These views are of Lunar Lake, Nevada, USA, which is our primary experiment site.



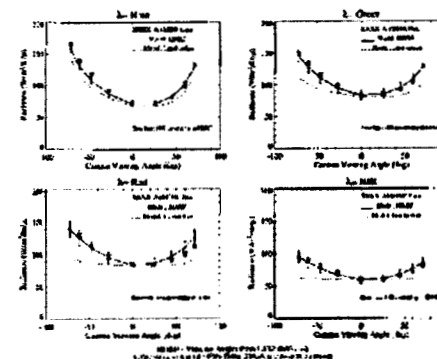
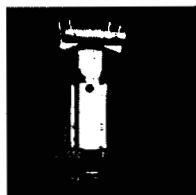
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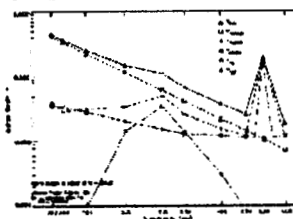
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Atmospheric measurements



MISR VICARIOUS

1996-1997

MISR VICARIOUS CALIBRATION

Site selection

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